REMARKS

Claims 7-10 stand rejected on prior art basis and claims 8-10 stand rejected for informalities. Claims 11-16 have been added to claim additional features of the present invention.

It is noted that any claim amendments are made to merely clarify the language of each claim, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Specifically, claims 7 and 8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Vargo (US 6,167,060) and claims 9-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vargo in view of Grabelsky (U.S 6,678,250).

These rejections are respectfully traversed in view of the following discussion.

I. THE 35 USC 112, SECOND PARAGRAPH REJECTION:

Claims 8-10 stand rejected over the limitation "additionally providing the data corresponding to the next most recent blocks of data ...." as recited in claim 8. Although the Examiner cited claim 7 for this limitation, Applicant assumes this was a typographical error since the element only occurs in claim 8. Claim 8 has been amended to recite "providing the redundant data corresponding to data lost during said

packet loss, to said receiving modem" in order to overcome the Examiner's rejection. Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

II. THE PRIOR ART REJECTIONS

THE VARGO REFERENCE

The Examiner alleges that claims 7-8 are anticipated by Vargo. Applicant submits, however, that there are elements of the claimed invention which are neither taught nor suggested by this reference. The Examiner alleges that Fig. 7a-d and col. 6:5-19 of Vargo disclose "designating one of the segments as a new data segment," Fig. 7b and 5:63-67, 6:1-5 of Vargo disclose "retaining a predetermined number of number of sequential blocks of modem data at said transmitting gateway, by dropping the oldest block and retaining the most recent block," Figure 7b discloses "providing the most recent block of data in said new data segment of said data portion of said packet," and level 2 redundancy in 6:5-20 discloses "said new block of data is encoded in the next data packet as redundant data blocks" after "said gateway receives new block of data from said transmitting modem" and "said oldest block is dropped from said retained set of data," as recited in claim 1. This is incorrect for the following reasons:

Vargo specifically discloses redundancy methods using single packets containing separate data segments in a series and teaches against using a series of expanding redundant data segments *within* the same packet to provide redundancy. (col. 5, 15-20). The claimed invention provides "sequential blocks of modem data from said transmitting modem" that "provides the most recent block of data in said designate new

data segment of said data portion of said packet," as recited in claim 1.

Vargo addresses changing the packet size that would contain more data but this is only a longer, single data unit: "But while changing the packet size or bundling puts more information in each packet, changing the packet redundancy does not." Vargo specifically goes on to disclose in 5:50-6:35 using packet redundancy, not changing the packet size and not adding redundancy within the packets themselves.

The specific method of pairs of data segments for data redundancy within a packet of the claimed invention is not analogous to the multi-level packet redundancy of Vargo because Vargo claims that "an important focus of the present invention is the *particular forward error correction algorithm for providing data redundance* (col. 5, lines 4-5) and that particular technique uses only single packets containing single redundant data units. The claimed invention stacks multiple redundant data pairs of consecutive data segments into multiple data segments of one single packet.

The table on page 18 shows an exemplary embodiment of the claimed invention that illustrates this technique. In stacking the redundant data, the first packet S has only data for that packet, packet S+1 contains S+1 data and the previous S data, packet S+2 contains that packet data and all previous data segments, up to a maximum data length within a packet of kN. Vargo's particular data series in Fig. 7a-d shows one data unit in each packet "T," "h," and so forth. For example, In the level-3 redundancy , the next packet after "T" does not grow its data buffer to include an additional "T" paired with "h" and additional "h" paired with "i." Thus, the data buffer within each packet of

Vargo does not expand with the addition of additional encapsulated data segments. The Fig. 7b does not show this because the data is dropped from the paired segments immediately after the second copy of the packet is transmitted in consecutive order.

Further, the method disclosed by Vargo would create unnecessary and wasteful delay in processing the packets by the receiving gateway and modem of the claimed invention. Vargo's method uses a *single data stream*, in consecutive order, that contains redundant packets. Packet loss in a packet network rarely exceeds 1% of packets, thus if no packets are lost, the receiver must process through each packet in Vargo's series in consecutive order. This is a waste of processing resources and bandwidth. For example, Vargo's voice decoder must process through pairs of each data in consecutive order in Level 1 (Fig 7b), process through three copies of packets in Level-2 (Fig 7c), and four copies of the same packet in Level -3 (Fig 7d). This does not teach or suggest claimed invention that overcomes this method of needlessly processing through copies of packets. The claimed method always including a *new encapsulated data segment in each consecutive packet*. It is understood that if there is no packet loss a modem receiver simply ignores the additional data and has a steady stream of unique data segments to process in each packet, thereby eliminating processing delays of unnecessary voice packets as disclosed by Vargo.

Thus, there is no teaching or suggestion of:

> *a method for reducing data loss in the event of packet loss in a modem relay connection over a packet network including a transmitting modem and a transmitting gateway, a receiving modem and a receiving gateway, the method comprising:*

providing a packet format including a header portion, a sequence number and a data portion;

dividing said data portion into a plurality of segments;

designating one of said segments as a new data segment;

providing sequential blocks of modem data from said transmitting modem to said transmitting gateway;

retaining a predetermined number of sequential blocks of modem data at said transmitting gateway, by dropping the oldest block and retaining the most recent block;

providing the most recent block of data in said designated new data segment of said data portion of said packet;

providing the remaining retained blocks of data in the remainder of said segments; wherein:

each time said transmitting gateway receives a new block of data from said transmitting modem, said oldest block is dropped from said retained set of data,

said new block of data is encoded in the next data packet as the new data block; and

said remaining retained blocks are encoded into said data packet as redundant data blocks; and

transmitting said packets from said transmitting gateway to said receiving gateway," as recited in claim 1.

THE GRABELSKY REFERENCE

The Examiner alleges claims 9-10 are obvious over Vargo in view of Grabelsky. Applicant submits that these references would not have been combined by one skilled in the art, but if combined do not teach or suggest the claimed invention. Applicant submits that Grabelsky would not have been combined with Vargo. Grabelsky provides network performance monitoring by gathering packet statistics at devices and gateways in networks such as VOIP networks. (col. 2, lines 15-30). Col. 11, lines 45-67 of Grabelsky merely describe packet loss and jitter tolerances and alarms if statistics exceed tolerances. These passages from Grabelsky do not disclose using data

redundancy to cure packet loss. A high packet loss alarm would not add to the disclosure of Vargo because Vargo specifically limits that redundancy technique "between zero and three" redundancy levels. (col. 5, line 30). Thus, Grabelsky combined with Vargo would only produce the disclosure of Vargo, regardless of the number of network alarms on Vargo's networks.

The Examiner has failed to make a requisite showing of the teaching or motivation to combine the prior art references. Thus, there is no reason one skilled in the art would combine Vargo with Grabelsky to produce the disclosure of Vargo, absent hindsight. The obviousness rejections for all the presently pending claims are impermissible and should be withdrawn.

Further, the Examiner has attempted to identify in separate pieces of prior art each individual part claimed in the Application. This is insufficient to defeat patentability of the whole claimed invention.

The Examiner alleges that "Vargo substantially teaches the limitations of claims 9 and 10, including a dynamical change of the redundancy level/number of sequential blocks in Fig. 7 due to the network conditions 6:38-48. However, for the reasons stated above regarding Vargo, simply adding more redundancy (meaning more copies of packets) Vargo's data streams adds even more delays of processing unnecessary packets and does not teach or suggest the expanding method of redundant data segments within the same packet, where a unique segment of data is always found within a unique packet. Further, Vargo is limited to a level-3 redundancy (5:30) and can

only vary up to that level. The claimed invention has no limits on redundant data segments within a packet except for the data length negotiated by the modems and gateways.

For the reasons stated above, Applicant submits that claims 7-10 are patentable over the cited references. Applicant requests the Examiner to reconsider and withdraw the rejections.

CONCLUSION

The informalities in the specification have been corrected as requested by the Examiner.

In view of the above amendments, the Examiner is respectfully requested to pass the above application to issue at the earliest possible time. Should the Examiner find the application to be other than in condition for allowance, the Examiner may contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 20-0668.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on April 11, 2005.

Kendal M. Sheets 4/11/05
Date